



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,893

09/29/2006

Daniel Kopf

120391

8707

25944

7590

10/18/2007

OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

HAGAN, SEAN P

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

10/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary	Application No. 10/581,893	Applicant(s) KOPF ET AL.	
	Examiner Sean Hagan	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>25 July 2006; 28 August 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 through 12 originally filed 6 June 2006. Claims 1 through 11 presented as amended sheet of claims 6 June 2006. Claims 5, 6, 7, 9, 10, and 11 amended by second amendment filed 6 June 2006. Claims 1 through 10 amended by amendment filed 5 July 2006. Claim 11 cancelled by amendment filed 5 July 2006. Claims 12 through 19 added by amendment filed 5 July 2006. Claims 1 through 10 and 12 through 19 are pending in this application.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.
3. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.
4. The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Art Unit: 2828

5. Where applicable, the abstract should include the following:
 - (1) if a machine or apparatus, its organization and operation;
 - (2) if an article, its method of making;
 - (3) if a chemical compound, its identity and use;
 - (4) if a mixture, its ingredients;
 - (5) if a process, the steps.
6. Extensive mechanical and design details of apparatus should not be given.
7. Applicant is reminded of the proper language and format for an abstract of the disclosure.
8. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.
9. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.
10. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1, 2, and 12 rejected under 35 U.S.C. 102(b) as being anticipated by Dahm (US Patent 5,848,080).

13. ***Regarding claim 1***, Dahm discloses, "An amplifying laser medium" (col. 4, lines 6-9). "A laser resonator with at least one resonator mirror" (col. 4, lines 6-9). "At least one pulse decoupling component" (col. 4, lines 28-45). "A pump source for pumping the laser medium" (col. 4, lines 46-51). "Wherein the pulse decoupling component is an electro-optical modulator" (col. 4, lines 28-45).

14. ***Regarding claim 2***, Dahm discloses, "Wherein the electro-optical modulator is a BBO cell" (col. 4, lines 28-45).

15. ***Regarding claim 12***, Dahm discloses, "Wherein the pump source is a laser diode source" (col. 4, lines 46-51).

Claim Rejections - 35 USC § 103

Art Unit: 2828

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 7, 8, 10, 17, and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Dahm.

18. **Regarding claim 7**, Dahm discloses, "Wherein the laser medium is ytterbium-doped glass or Nd:YVO₄ " (col. 4, lines 6-9).

19. **Regarding claim 8**, Dahm does not disclose, "Wherein the laser medium comprises ytterbium-doped tungstates." It would have been an obvious matter of design choice to use KGW or KYW as host material, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the difference.

20. **Regarding claim 10**, Dahm discloses, "The pump light spot consisting of a single ray or the combination of a plurality of rays" (col. 4, lines 46-51). Dahm does not disclose, "Wherein the pump source is formed and is arranged in such a way that a pump light spot having a ratio of length to width of at least 2:1 is formed." It would have been an obvious matter of design choice to design the pump medium to have a ratio of length to width of 2:1, since applicant has not disclosed that this difference solves any

Art Unit: 2828

stated problem or is for any particular purpose and it appears that the invention would perform equally well with the difference.

21. **Regarding claim 17**, Dahm does not disclose, "Wherein the laser medium comprises Yb:KGW or Yb:KYW." It would have been an obvious matter of design choice to use KGW or KYW as host material, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the difference.

22. **Regarding claim 18**, Dahm discloses, "Wherein pump light consists of the combination of a plurality of rays" (col. 4, lines 46-51). "The rays being generated by laser diodes" (col. 4, lines 46-51).

23. Claims 3 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Dahm in view of Dell'Acqua et al. (Dell'Acqua, US Pub. 2005/0152426).

24. **Regarding claim 3**, Dahm does not disclose, "Wherein the electro-optical modulator is an RTP cell." Dell'Acqua discloses, "Wherein the electro-optical modulator is an RTP cell" (p. [0091], lines 1-5). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of Dell'Acqua. The use of RTP electro optical modulator as Q-switch as disclosed by Dell'Acqua would have been suitable for use with the teachings of Dahm. The selection

Art Unit: 2828

of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

25. **Regarding claim 13**, Dahm does not disclose, "Wherein the RTP cell comprises a component for compensating thermal drift." Dell'Acqua discloses, "Wherein the RTP cell comprises a component for compensating thermal drift" (p. [0092], lines 1-5). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of Dell'Acqua for the reasons disclosed above regarding claim 3.

26. Claims 4 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Dahm in view of Duguay et al. (Duguay, US Patent 3,675,154).

27. **Regarding claim 4**, Dahm does not disclose, "At least one dispersive mirror for dispersion compensation." Duguay discloses, "At least one dispersive mirror for dispersion compensation" (col. 1, lines 46-54). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of Duguay. The inclusion of dispersion compensation as disclosed by Duguay would enhance the teachings of Dahm by allowing reduction of pulse width of optical pulses (Duguay, col. 1, lines 38-42).

Art Unit: 2828

28. **Regarding claim 14**, Dahm does not disclose, "Wherein the at least one dispersive mirror for dispersion compensation is a Gires-Tournois interferometer." Duguay discloses, "Wherein the at least one dispersive mirror for dispersion compensation is a Gires-Tournois interferometer" (col. 1, lines 46-54). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of Duguay for the reasons given above regarding claim 4.

29. Claims 6, 16, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Dahm in view of applicant's admitted prior art.

30. **Regarding claim 6**, Dahm does not disclose, "Wherein the laser system is formed so that, in the generation of femtosecond pulses, the r parameter is less than 1." Applicant's admitted prior art discloses, "Wherein the laser system is formed so that, in the generation of femtosecond pulses, the r parameter is less than 1" (pg. 7, lines 6-18). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. Operating conditions presented for operation in applicant's admitted prior art would enhance the teachings of Dahm by improving stability conditions.

31. **Regarding claim 16**, Dahm does not disclose, "Wherein the r parameter is less than 0.25." Applicants admitted prior art discloses, "Wherein the r parameter is less

than 0.25" (pg. 12, lines 12-25). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. Operating conditions presented for operation in applicant's admitted prior art would enhance the teachings of Dahm by improving stability conditions.

32. **Regarding claim 19**, Dahm does not disclose, "Providing a material to be processed by plasma generation." Applicant's admitted prior art discloses, "Providing a material to be processed by plasma generation" (pg. 1, lines 11-20). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. Intended use for high-speed laser devices as disclosed by applicants admitted prior art would have been a suitable application for a device according to the teachings of Dahm. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

33. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Dahm in view of Powell et al. (Powell, US Patent 4,849,036).

34. **Regarding claim 9**, Dahm does not disclose, "Wherein the laser medium has a disc-like geometry." Powell discloses, "Wherein the laser medium has a disc-like geometry" (col. 1, lines 23-44). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of Powell. Laser disk geometry as taught by Powell would have been suitable to use with the teachings of Dahm. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

35. Claims 5 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Dahm in view of Duguay and further in view of applicants admitted prior art.

36. **Regarding claim 5**, Dahm does not disclose, "Wherein the laser system is formed so that, in the generation of picosecond pulses, the nonlinear phase is less than 100 mrad." "The nonlinear phase being calculated per resonator cycle and per 1% modulation depth of the saturable absorber mirror." Applicant's admitted prior art discloses, "Wherein the laser system is formed so that, in the generation of picosecond pulses, the nonlinear phase is less than 100 mrad" (pg. 12, lines 12-25). "The nonlinear phase being calculated per resonator cycle and per 1% modulation depth of the saturable absorber mirror" (pg. 12, lines 12-25). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. It would have been obvious to one of

Art Unit: 2828

ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. Operating conditions presented for operation in applicant's admitted prior art would enhance the teachings of Dahm by improving stability conditions.

37. ***Regarding claim 15***, Dahm does not disclose, "Wherein the nonlinear phase is less than 10 mrad." Applicant's admitted prior art discloses, "Wherein the nonlinear phase is less than 10 mrad" (pg. 12, lines 12-25). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Dahm with the teachings of applicant's admitted prior art. Operating conditions presented for operation in applicant's admitted prior art would enhance the teachings of Dahm by improving stability conditions.

Conclusion

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Hagan whose telephone number is 571-270-1242. The examiner can normally be reached on Monday-Friday 7:30 - 5:00.

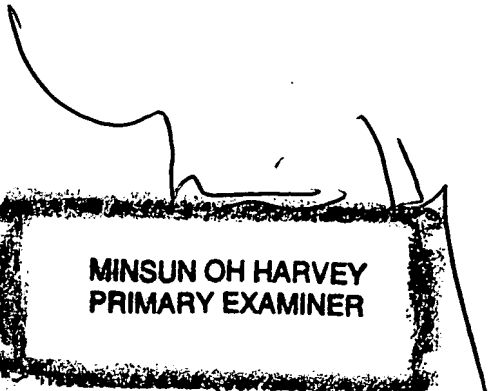
39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun O. Harvey can be reached on 571-272-1835. The fax phone

Art Unit: 2828

number for the organization where this application or proceeding is assigned is 571-273-8300.

40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH


**MINSUN OH HARVEY
PRIMARY EXAMINER**